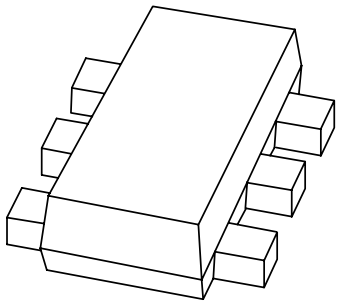
DATA SHEET



PBSS3515VS

15 V low V_{CEsat} PNP double transistor

Product specification
Supersedes data of 2001 Sep 27

2001 Nov 07

Philips Semiconductors

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15 V low V_{CEsat} PNP double transistor PBSS3515VS

FEATURES

- 300 mW total power dissipation
- Very small 1.6 x 1.2 mm ultra thin package
- Self alignment during soldering due to straight leads
- Low collector-emitter saturation voltage
- High current capability
- Improved thermal behaviour due to flat leads
- Replaces two SC75/SC89 packaged low V_{CEsat} transistors on same PCB area
- Reduces required PCB area
- Reduced pick and place costs.

APPLICATIONS

- General purpose switching and muting
- Low frequency driver circuits
- LCD backlighting
- Audio frequency general purpose amplifier applications
- Battery driven equipment (mobile phones, video cameras and hand-held devices).

DESCRIPTION

PNP low V_{CEsat} double transistor in a SOT666 plastic package.
NPN complement: PBSS2515VS.

MARKING

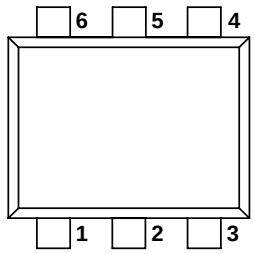
TYPE NUMBER	MARKING CODE
PBSS3515VS	35

QUICK REFERENCE DATA

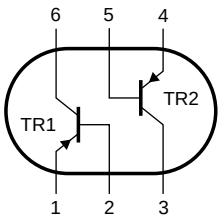
SYMBOL	PARAMETER	MAX.	UNIT
V_{CEO}	collector-emitter voltage	–15	V
I_{CM}	peak collector current	–1	A
R_{CEsat}	equivalent on-resistance	<500	mΩ

PINNING

PIN	DESCRIPTION
1, 4	emitter TR1; TR2
2, 5	base TR1; TR2
6, 3	collector TR1; TR2



Top view



MAM450

Fig.1 Simplified outline (SOT666) and symbol.

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
Per transistor unless otherwise specified					
V_{CBO}	collector-base voltage	open emitter	–	–15	V
V_{CEO}	collector-emitter voltage	open base	–	–15	V
V_{EBO}	emitter-base voltage	open collector	–	–6	V
I_C	collector current (DC)		–	–500	mA
I_{CM}	peak collector current		–	–1	A
I_{BM}	peak base current		–	–100	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C; note 1	–	200	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		65	+150	°C
Per device					
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C; note 1	–	300	mW

Note

1. Transistor mounted on an FR4 printed-circuit board.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j\text{-}a}$	thermal resistance from junction to ambient	notes 1 and 2	416	K/W

Notes

1. Transistor mounted on an FR4 printed-circuit board.
2. The only recommended soldering method is reflow soldering.

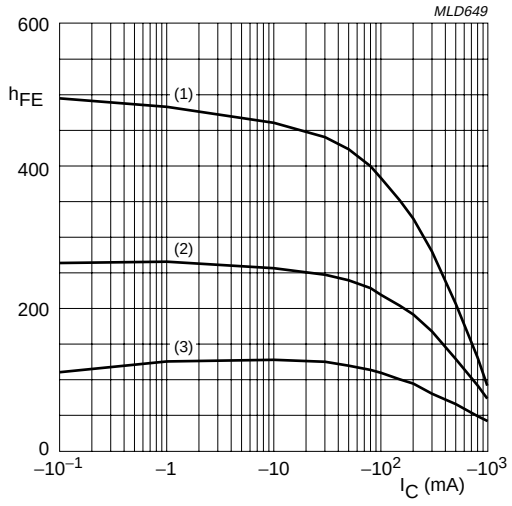
CHARACTERISTICS

T_{amb} = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Per transistor unless otherwise specified						
I_{CBO}	collector-base cut-off current	V_{CB} = –15 V; I_E = 0	–	–	–100	nA
		V_{CB} = –15 V; I_E = 0; T_j = 150 °C	–	–	–50	µA
I_{EBO}	emitter-base cut-off current	V_{EB} = –5 V; I_C = 0	–	–	–100	nA
h_{FE}	DC current gain	V_{CE} = –2 V; I_C = –10 mA	200	–	–	
		V_{CE} = –2 V; I_C = –100 mA; note 1	150	–	–	
		V_{CE} = –2 V; I_C = –500 mA; note 1	90	–	–	
V_{CEsat}	collector-emitter saturation voltage	I_C = –10 mA; I_B = –0.5 mA	–	–	–25	mV
		I_C = –200 mA; I_B = –10 mA	–	–	–150	mV
		I_C = –500 mA; I_B = –50 mA; note 1	–	–	–250	mV
R_{CEsat}	equivalent on-resistance	I_C = –500 mA; I_B = –50 mA; note 1	–	300	<500	mΩ
V_{BEsat}	base-emitter saturation voltage	I_C = –500 mA; I_B = –50 mA; note 1	–	–	–1.1	V
V_{BE}	base-emitter turn-on voltage	V_{CE} = –2 V; I_C = –100 mA; note 1	–	–	–0.9	V
f_T	transition frequency	I_C = –100 mA; V_{CE} = –5 V; f = 100 MHz	100	280	–	MHz
C_c	collector capacitance	V_{CB} = –10 V; I_E = I_e = 0; f = 1MHz	–	–	10	pF

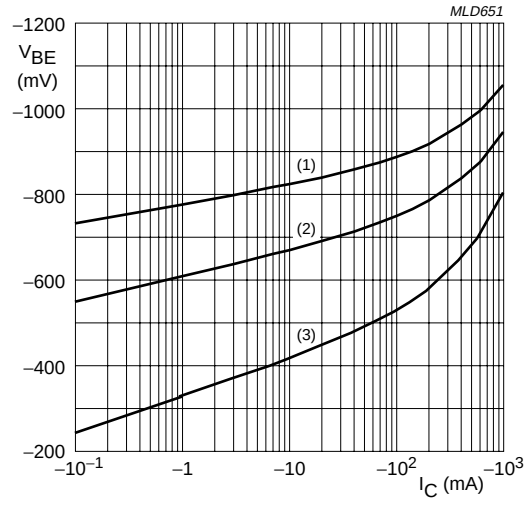
Note

1. Pulse test: $t_p \leq 300$ µs; $\delta \leq 0.02$.



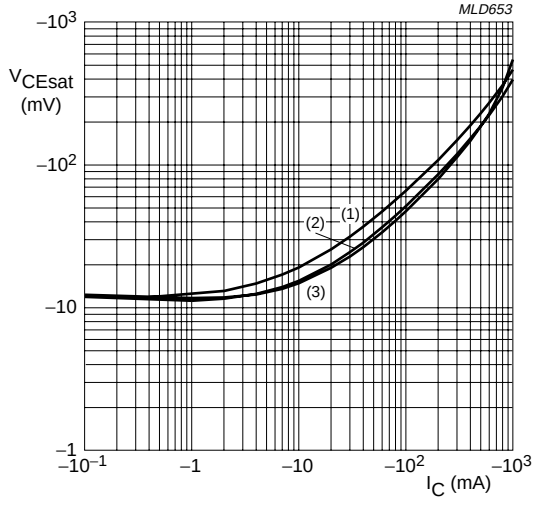
V_{CE} = −2 V.
(1) T_{amb} = 150 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = −55 °C.

Fig.2 DC current gain as a function of collector current; typical values.



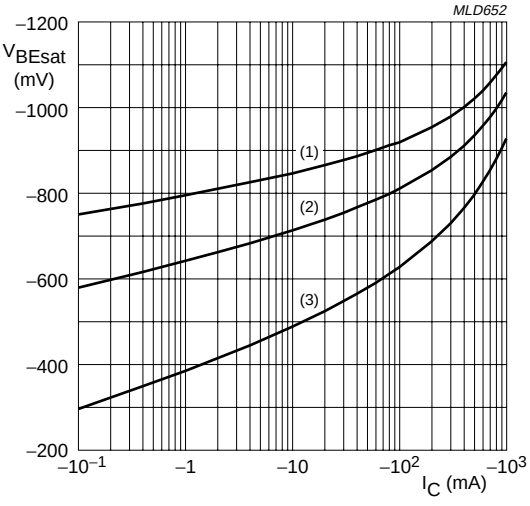
V_{CE} = −2 V.
(1) T_{amb} = −55 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = 150 °C.

Fig.3 Base-emitter voltage as a function of collector current; typical values.



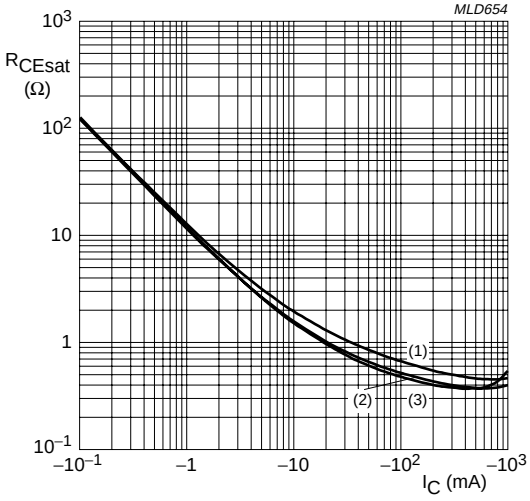
I_C/I_B = 20.
(1) T_{amb} = 150 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = −55 °C.

Fig.4 Collector-emitter saturation voltage as a function of collector current; typical values.



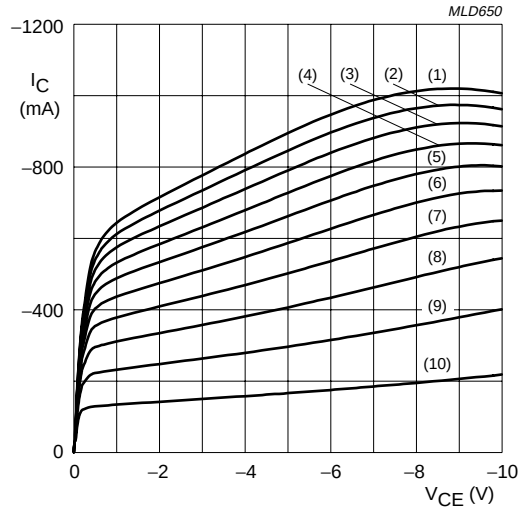
I_C/I_B = 20.
(1) T_{amb} = 150 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = −55 °C.

Fig.5 Base-emitter saturation voltage as a function of collector current; typical values.



I_C/I_B = 20.
(1) T_{amb} = 150 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = −55 °C.

Fig.6 Equivalent on-resistance as a function of collector current; typical values.



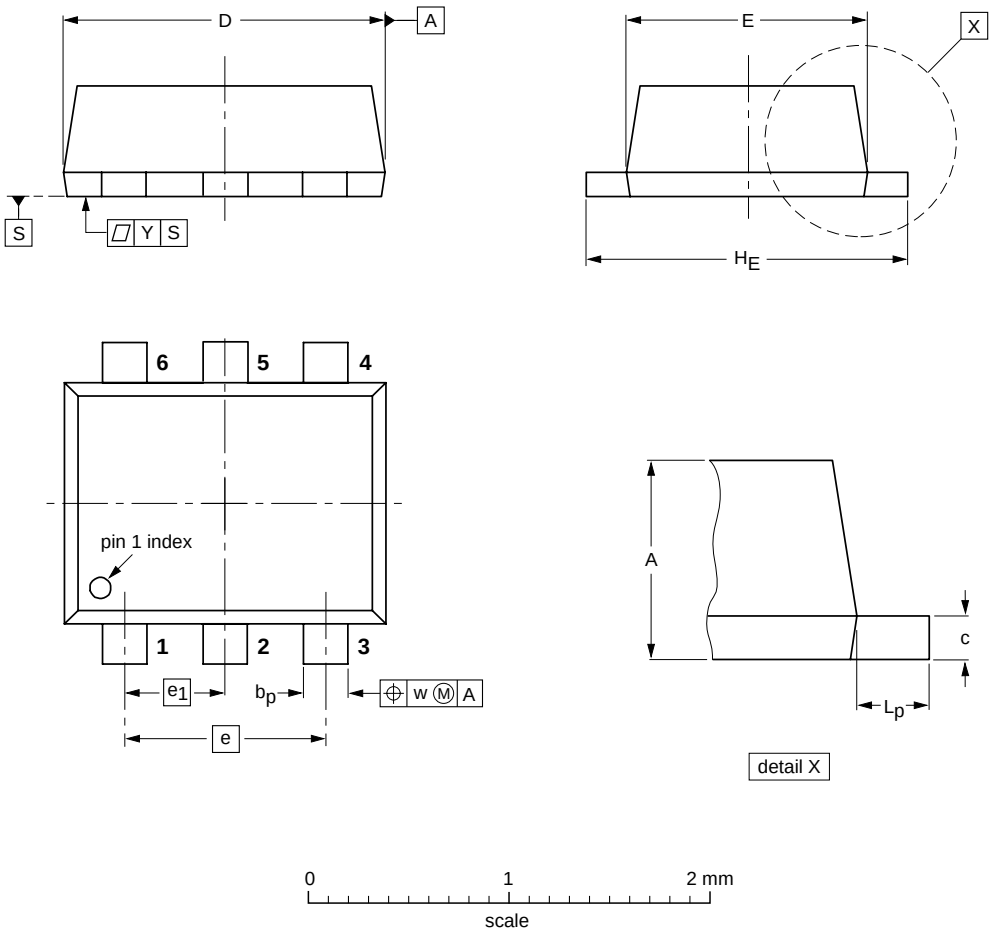
T_{amb} = 25 °C.

(1) I_B = −7 mA.
(2) I_B = −6.3 mA.
(3) I_B = −5.6 mA.
(4) I_B = −4.9 mA.
(5) I_B = −4.2 mA.
(6) I_B = −3.5 mA.
(7) I_B = −2.8 mA.
(8) I_B = −2.1 mA.
(9) I_B = −1.4 mA.
(10) I_B = −0.7 mA.

Fig.7 Collector current as a function of collector-emitter voltage; typical values.

PACKAGE OUTLINE

Plastic surface mounted package; 6 leads **SOT666**



DIMENSIONS (mm are the original dimensions)

UNIT	A	b_p	c	D	E	e	e_1	H_E	L_p	w	y
mm	0.6 0.5	0.27 0.17	0.18 0.08	1.7 1.5	1.3 1.1	1.0	0.5	1.7 1.5	0.3 0.1	0.1	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT666						~~01-01-04~~ 01-08-27

DATA SHEET STATUS

DATA SHEET STATUS[1]	PRODUCT STATUS[2]	DEFINITIONS
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